

16.070

Introduction to Computers & Programming

Asymptotic analysis: upper/lower bounds, Θ notation
Binary, Insertion, and Merge sort

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Complexity Analysis

- Complexity: rate at which storage or time grows as a function of the problem size
 - Growth depends on compiler, machine, ...
- Asymptotic analysis
 - Describing the inherent complexity of a program, independent of machine and compiler.
 - A “proportionality” approach, expressing the complexity in terms of its relationship to some known function.

Asymptotic Analysis

- **Idea:** as problem size grows, the complexity can be described as a simple **proportionality** to some known function.

